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Impact of Corporate Social Responsibility in the European Pharmaceutical Market

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Abstract

The objective of this master thesis is to evaluate the impact of CSR measures in the financial performance of the European pharmaceutical industry. By definition, CSR measures is quantified as corporate social disclosure considering the published CSR keywords on the annual reports of the selected companies, over four fiscal years (2010-2013). The financial performance of the companies were measured as return on assets (ROA) and Tobin's Q. In order to defend the hypothesis developed, a multivariate regression is performed. The results obtained show no significant impact on the financial performance of a company nor in the short-time, nor in the long-time. Moreover, by comparison with other studies, it was possible to conclude that the financial performance is differently affected when considering different industries.

Introduction

Nowadays, no major company can survive without a statement on corporate social responsibility (CSR). In the last forty years of the twentieth century, corporate social responsibility became one of the hot topics in the management academic literature (Anderson and Frankle, 1980). Part of the debate that surrounds the studies on CSR is due to the existence of various definitions of this concept. Several definitions were developed, as different stakeholders see the role of the firms in society differently (Giannarakis and Theotokas, 2011). The modern concept of CSR - "corporate social responsibility involves the conduct of a business so that it is economically profitable, law abiding, ethical and socially supportive. To be socially responsible then means that profitability and obedience to the law are foremost conditions when discussing the firm's ethics and the extent to which it supports the society in which it exists with contributions of money, time and talent" Carroll (1983, p.608). - has evolved since the 1950s and rapidly multiplied in the 1970s (Carroll, 1999). In 2003, Schwartz and Carroll (2003), in order to better define CSR elements, developed a three-domain conceptualization. It includes economic, legal and ethical obligations, joining the fourth dimension of philanthropy into the ethical component.

The emergence of CSR can be attributed to the Stakeholder Theory, as defended by Pirsch *et al* (2007). Developed by R.Edward Freeman, Stakeholder theory is related to organizational management and business ethics. Many scholars have tried to integrate the ethical perspective of CSR in the practical, managerial orientation of stakeholder theory (Mele 2008; Parmar *et al* 2010; Windsor 2006). Nevertheless, both researchers on CSR and researchers on Stakeholder Theory are prone to defend that both topics are not quite the same.

The delimitation between them is explained by the differences in CSR obligations to the overall society and the responsibilities of business to create value (Berman *et al* 1999; Freeman and Liedtka 1991).

Financial economists are mainly interested in the financial impact of CSR in profit-seeking companies. (Pour, B. *et al*, 2014). Several studies suggest that CSR has a positive impact not only on financial performance but also on the image of companies (e.g: Barnett and Salomon, 2006; Ruf et al., 2001). Nevertheless, others argue that due to the dependency that some industries have on certain stakeholder groups, the way their financial performance and corporate image can be affected considering social and or environmental negative changes, enhances the relevance of applying CSR measures.(e.g.: Hoepner et al., 2010; Martin L. Hirsch, 2008; Servaes et al., 2013).

The pharmaceutical industry is among these industries, due to the area in which it operates. This industry, which is constantly under scrutiny, is key for the European economy. In 2011, Europe was the second largest market for pharmaceutical sales, with a market value of €228.1 billion. The industry employed 660,000 people and had an international trade surplus of €48.3 bn (Source: EFPIA).[1] There are not many other sectors that are able to match the contribution this sector offers regarding investment in R&D, trade balance and creation of skilled employment. Economically, the European pharmaceutical industry is seen as the world leader. As such, it will be the industry analyzed in this study.

I assess whether implementing CSR measures is associated with an increase in financial performance of highly pressured firms. By highly pressured firms I mean, firms that due to the sensible nature of their business are constantly under pressure to make morally compromised choices. As such, firms where their business may significantly affect lives - human or animal - (pharmaceutical industry, tobacco companies, among others).

In this project I estimate a multivariate model in order to measure the level of impact of CSR measures on the financial performance of firms in the pharmaceutical industry. This way, I perform analyses focusing on the pharmaceutical industry that is considered highly pressured by stakeholders.

Using data from Bloomberg and companies' annual reports, the objective of this master thesis is to prove the impact of CSR measures on the financial performance of firms in the European pharmaceutical industry. To do so, three hypothesis are developed. As stated before and further developed during this paper, nowadays there is still some conflict between scholars

[1] European Federation of Pharmaceutical Industries and Associations

regarding the impact of CSR measures in the financial performance of a company. Besides this, there is also a discussion regarding the influence of the time horizon in the same impact. Some scholars (Berman *et al.* 1999, Inoue and Lee 2011), defend that the impact of CSR measures affect differently the financial performance of a company during the short-term and the long-term. Nevertheless, there is still some controversy with scholars defending different results in the same time horizon.

Based on what was stated above, my first two hypothesis were developed. First of all, I will run a multivariate model in order to prove CSR measures do not have a significant positive impact in the financial performance of a company in the short time. I will use, as a dependent variable, Return on Assets (ROA). ROA is seen as an accounting-based measure that explains how efficient a company is in using its assets. My second hypothesis state that CSR measures have a significant positive impact in the financial performance of a company in the long-time. As the dependent variable I will use Tobin's Q that is defined as the evaluation that is made by the investor considering the potential of the company to generate future profits.

My third hypothesis was developed considering that prior literature defends that, depending on the industry where the company operates, CSR measures may impact differently the financial performance of a company. Moreover, industries that have a closer relationship with the overall environment and the stakeholders, are affected differently by the CSR activities employed. As such, I state that CSR measures positively affect the financial performance of sensitive firms.

In order to perform this study, I extracted from Bloomberg the following variables: market value of equity, total assets, total liabilities, return on assets, annual sales, R&D expenditures and year of foundation, and it will cover the firms in the chosen pharmaceutical industry. In order to measure CSR, I used company's annual reports and I assess this via content analysis, which is a widely used method in the analysis of non-financial reports.

I used a sample of 22 European pharmaceutical companies. The time period under study is from 2010 to 2013 (four fiscal years).

It is important to mention that the results obtained in this study have to be interpreted with care, due to the limitations attached to it. Main limitations concern source of the data and sample size, and as such, can affect very significantly the conclusions taken from the results obtained.

With this study, I contribute to the literature by analyzing how CSR measures impact the financial performance of a specific industry (pharmaceutical) in a specific continent (European). Most of the studies are based on US companies' or in a specific country. Also,

most of the studies include companies from different industries, or more than one industry in the same study.

Literature Review

The European Union states that CSR has to be seen as a behavior of the business that goes beyond the legal requirements (European Commission, 2011). It defines CSR as a social contract, between the company and the society which obliges the company to, when making decisions, thinking about the overall society. (European Commission, 2011) Furthermore, companies have their own ideologies on social responsibility and what it means to act socially responsible. This, in the business world, revolves around creating shared value.

Sprinkle and Maines (2010) mention several **motivations** for companies to incorporate CSR activities. First, by being involved in CSR activities, a company is automatically protected from negative publicity and also from harsh measures from Non-Governmental Organizations (NGOs). NGOs are seen as a key stakeholder when considering CSR strategies, since they are involved in activities such as awareness raising, both to the general public and to policymakers. Second, investors are more willing to invest in companies that employ CSR practices. Finally, customers are also more willing to embrace in a customer relationship with companies that employ CSR practices. Carroll and Shabana (2010) find that consumers prioritize social responsiveness and minimize financial benefits. Employees also feel more attracted to companies that behave in a social responsible manner. In fact, Albinger and Freeman (2000) find that job-seekers, when aware of CSR practices, feel more willing to accept a job in a company that employs such practices. Also, Flynn (2005) shows that employees reward CSR practices linked to their job due to the feeling of engagement in being productive. In line with this, Bashir *et al.* (2012) also find that employees feel some comfort with social responsible firms, therefore increasing their productivity. The **economic motivation** is also important. CSR can be a way of reducing production costs. Sprinkle and Maines (2010) find that the cost of operations can be reduced significantly if a company increases efficiency by becoming focused on reducing wastes - environmental focus. Other researchers show that by developing environmentally friendly products, firms can reduce costs and attract and retain new customers (Bauman & Skitka, 2012).

Due to all these reasons, CSR activities can be a way of creating and developing strategic resources. By building a positive reputation and developing a good corporate image, companies are able to institute convenient stakeholder relationships, which will in the end help the firm to charge more for their products, attract and retain customers, employees and capital

investors (Wang & Bansal, 2012). Petersen and Vredenburg (2011), present a study where they analyze if it is important for institutional investors to invest in companies that are social responsible. More than concluding that institutional investors are prone to invest in social responsible firms, they also conclude that there are CSR variables that impact not only the decision of investing, but also the decision to keep the shares later on - this has an impact on the capital market's valuation of the firm.

Researchers have assessed the relationship between CSR and financial performance, with mixed findings. Margolis and Walsh (2003) review 127 studies and find that 54 find evidence of a positive relationship, 7 conclude there is a negative relationship, and 28 present no significant association. These findings can be categorized into three major groups. The first one supports the stakeholder theory, developed by Freeman (1984). This view purposes that the survival of a firm is dependent, not only on the maximization of profit, but also on the social performance of the company (Kang *et al.,* 2010). Several researchers like Anderson and Frankle (1980), Shane and Spicer (1983) and Spicer (1978) obtain results that support the latter (Khanifar *et al.,* 2012). On the opposite side, there is the view which believes that CSR has a negative relationship with financial performance. This view is aligned with the idea developed by Friedman (1970), who believes managers are only obligated to increase the profit of the firm, and thus, meaning that the company is only responsible to increase the return to its shareholders. Vance (1975) as well as Wright and Ferris (1997) produced findings that are in line with this theory (Barnett & Salomon, 2012). In the final group, researchers argue that there are too many parameters difficult to measure and that may end up intertwining relations, which in the end leads to not being able to drive precise conclusions regarding the relationship between CSR and financial performance (e.g.: Kang *et al.,* 2010).

Financial performance can be measured in terms of short-term or long-term profitability. While the first one measures abnormal returns, the second one uses accounting or financial measures of profitability. Researchers find mixed results, when comparing conclusions based on these different ways of measuring return (Tsoutsoura, 2004). This can be a consequence of methodological concerns (Margolis & Walsh, 2003) or even model misspecification (Servaes & Tamayo, 2013), as it is still unclear the channels by which CSR affects firm value. Although most of theoretical models assume that there is a direct link between CSR and firm value, Barnett (2007) relies on the idea that the impact of CSR on firm value is dependent on the capacity of CSR to influence stakeholders.

Scholars found that the impact of CSR depends on several **characteristics of the firm**. Factors such firm's size, R&D, market conditions, age and diversification, have a considerable

impact on how CSR will in the end affect the financial performance of the firm (McWilliams & Siegel, 2001). Another important aspect is industry. Studies have confirmed that the impact of CSR activities varies with the industry of the company. Inoue and Lee (2011) dedicate their study to analyze the impact of CSR in different companies within the tourism industry, but comprising different sub-industries: casino, hotel, airline and restaurant. The results of their study indicate that the financial impact is different across sub-industries. Kang *et al*. (2010) also found the supporting results to this view – however, in this study the hospitality industry was the one under scrutiny. Scholars defend that some industries, due to more challenging economic and social pressures that have to be accounted for, are facing demands to respond positively to the test of CSR (Khanifar *et al.,* 2012). Hoepner *et al. (2010)* defend that the heterogeneity across industries is mainly explained by four concepts: (i) dependence on individual stakeholder groups, (ii) proximity to the end consumers, (iii) the potential an industry shows for social practices, (iv) environmental damage and the level of product/service differentiation. In the pharmaceutical industry CSR issues are very sensitive, as they include patient access to healthcare, patents protections, and affordability, among others (Khanifar *et al.,* 2012). According to Hoepner *et al.* (2010) the healthcare industry's CSR practices improve significantly the financial performance of companies. Thus, in this study, I focus on the pharmaceutical industry.

Hypothesis

Based on the previous literature review I develop three hypotheses. Although there are some mixed results regarding the impact of CSR in the financial performance of a company, a considerable percentage of the studies are in favor of a positive relationship between the two variables. However, scholars have found that CSR has a different impact on the financial performance of the company when the time horizon of the analysis varies. Berman *et al.* (1999) support the idea that on the short term, only some CSR dimensions can positively impact the financial performance of a company. This vision is also supported with the theory supported by Inoue and Lee (2011). A variety of studies, to measure the impact of CSR on short-term profitability, apply return on assets (ROA). Kang *et al.* (2010), using this measure, are only able to find a positive relationship for one out of the four hospitality industries (hotel, casino, restaurant and airline companies). Based on these findings, I state the first hypothesis as follows:

Hypothesis 1: CSR activities do not have a significant positive impact on the financial performance of a company in the short-term.

$$CSR_D = \alpha + \beta_1 ROA + \beta_2 LEVERAGE + \beta_3 SIZE + \beta_4 AGE + \beta_5 R\&D$$

When considering long-term financial performance, Inoue and Lee (2011) show that long-term financial performance is affected differently considering each dimension of CSR. A positive link between each dimension of CSR on the long-term financial performance was found by several studies. As such, the second hypothesis is stated as follows:

Hypothesis 2: CSR activities have a significant positive impact on the financial performance of a company in the long-term.

$$CSR_D = \alpha + \beta_1 Tobin's\ Q + \beta_2 LEVERAGE + \beta_3 SIZE + \beta_4 AGE + \beta_5 R\&D$$

Prior literature confirms that depending on the industry a firm is operating, CSR activities and dimensions can have different impacts on financial performance. Moreover, industries that are seen as more sensitive due to the relationship with the overall environment and the stakeholders, are affected by CSR activities very differently. In these companies, CSR activities have a much higher impact on their financial performance. The set of firms that I consider to be included in a sensitive industry consists of pharmaceutical companies. Based on the literature, the third hypothesis is stated as follows:

Hypothesis 3: CSR activities have a higher impact on the financial performance of sensitive firms.

This hypothesis will be tested by comparing the results I obtained with previous studies done using similar methodologies in other industries.

Methodology

Measuring Corporate Social Responsibility

For the purpose of this study, CSR will work as the main independent variable. I assess this via content analysis. [2]Content analysis is a widely used method in the analysis of non-financial reports. (Giannarakis *et al.,* 2011). Guthrie and Abeysekera (2006) define that content analysis corresponds to the technic of codifying qualitative and quantitative into pre-defined categories. This method allows researchers to obtain patterns in recording and presenting information. In a similar way, Krippendorff (2004) defends that content analysis allows making inferences, since it legitimates the transformation of raw information into usable one. To better understand content analysis, it is important to consider what it means to have qualitative and quantitative items.

Possible quantitative items include number of pages, sentences and words to discuss social responsibility in a company's annual report. In the end the quantitative approach will transform such items into quantitative statistical data. (Giannarakis *et al.,* 2011). The quantitative approach can have a considerable drawback since it might happen that those pages include graphs with no relevant information on social activities, or that sentence and word counting miss relevant information presented in tables and graphs (Singh, 2014). In the qualitative approach we first identify environmentally relevant issues and only after are the environmental disclosures analyzed, through the use of a score. Qualitative approach is more connected to analyze the intentionality of elements and parts of texts and the implications they have.

Content analysis also has drawbacks. Cochran & Wood (1984) state that this method is merely a snapshot of what the firm claims to be and as such skepticism has to be incorporated when analyzing the data obtained. Nevertheless, it is a relatively easy method to apply, since it is very objective and allows the analysis of considerably big sizes of information. Patten and Crampton (2004) classify content analysis as the most straightforward method to identify if a company presents social responsible information in their official documents or not.

[2] The most common and more famous method to measure CSR is reputation index in the Kinder, Lydenberg, Domini (KLD) database, developed by Waddock and Graves (1997). This dataset contains an index based on an annual analysis of the environmental, social, and governance performance of companies rated by KLD Research & Analytics, Inc. In order to achieve a rating, 80 indicators in 7 major qualitative issue areas are analysed (Community, Corporate Governance, Diversity, Employee Relations, Environment, Human Rights and Product). Involvement by the companies in controversial business areas is also considered. In 2003 KLD, which in 1991 was only able to provide a table with data from only 650 companies, reached a universe of the largest 3000 US companies by market capitalization. As such, and since this study is focused on the European pharmaceutical industry, this method is not valid.

Although content analysis is used throughout a significant number of studies, the unit of analysis has varied considerably among them. As Krippendorf points "In content analysis, three kinds of units deserve distinction: sampling units, recording/coding units, and context units" (p.97, 2004). To him, sampling units are defined as "units that are distinguished for selective inclusion in an analysis… Content analysts must define sampling units so that (a) connections across sampling units, if they exist, do not bias the analysis; and (b) all relevant information is contained in individual sampling units, or, if it is not, the omissions do not impoverish the analysis" (pp. 98-99). Adams *et al.* (1998) state that Annual reports are seen as the most important source of information regarding a company overall activities. A massive part of CSR literature has used annual reports as sampling unit (O'Dwyer, 1999). Therefore, I also base my analysis in the annual reports of the chosen companies.

Krippendorf (2004) defines coding units, as "Whereas sampling units are distinguished for inclusion in or exclusion from an analysis, ideally in a way that acknowledges natural boundaries, recording units are distinguished to be separately described or categorized. Thus recording units are typically contained in sampling units, at most coinciding with them, but never exceeding them" (pp. 99-100). A considerable number of CSR studies chose to employ words as recording units (Campbell *et al.*, 2003; Deegan and Gordon, 1990; Gao *et al.*, 2005; Wilmshurst and Frost, 2000) (Vourvachis). For Zeghal and Ahmed (1990) inconsistencies are avoided using word count, since words are the smallest unit of analysis. Due to this reason it provides maximum robustness in quantitative disclosure. Wang and Bansal (2012) applied content analysis on their study where they analyzed text published on all the introductory websites of the firms being scrutinized. To do so, they based their study on discrete CSR items and identified CSR keyword and the frequency at which they occurred. I follow their methodology.

I measure CSR disclosure through a keyword count method, using a free version of Atlas-ti 7, which is a software used for qualitative data analysis. This software allows me to assess the extension of CSR reporting in a firm's annual report. Firstly, the number of times a pre-defined CSR keyword (Appendix 1) appears in my sample unit will be calculated. The CSR keyword used for this study is the same one used by Wang and Bansal. Following the same approach of Wang and Bansal (2012), I do not distinguish different forms of the same word or count different tenses of the same word separately. In order to have robustness in the analysis, a manual check is performed on a sample of the data to make sure that the identified keywords are connected with CSR. After discovering the frequency of each distinct keyword, the level of CSR disclosure is estimated through the following formula;

$$CSR_D = \frac{(\sum_{i=1}^{N} T_i)}{K}$$

where N is the number of CSR keywords in the sample unit, T_i is the respective frequency and K is the total number of keywords presented in the annual report. According to Wang and Bansal (2012), it has been observed that larger firms show a tendency to have more CSR keywords when compared with smaller firms. As such, the total number of words in the annual report divides the sum of total CSR keywords.

Financial Performance Measures

As explained above, financial performance can be measured considering short-term and long-term. For the short-term profitability, the dependent variable chosen is ROA and for the long-term profitability I use Tobin's Q, following the methodology of Barnett & Salomon (2012) and Inoue and Lee (2011). ROA is seen as an accounting-based measure that measures how efficient a firm is in the usage of its assets, during a period of time. It is estimated by using operating income before interest expense, depreciation and amortization over total assets (Inoue & Lee, 2011). Tobin's Q is defined as the evaluation that is made by the investor considering the potential of the company to generate future profits. In other words, it is seen how the market perceives a company's value. Tobin's Q is estimated by adding market value of equity to liabilities divided by total assets (Inoue & Lee, 2011). The formula is expressed as:

$$\frac{Tobin's\ q\ =\ (MVE\ +\ PS\ +\ DEBT)}{TA}$$

where MVE is obtained by a firm's stock price multiplied by the number of its common stocks outstanding; PS is the liquidating value of a firm's outstanding preferred stock; DEBT is the value of short-term liabilities net of a firm's short-term assets plus the book value of its long-term assets; and TA is the book value of a firm's total assets. This is the simplified version of the original Tobin's expression (1969), which was developed and validated by Chung and Pruitt (1994). To simplify even more, Klapper and Love (2004) defined Tobin's Q as being simply market value of equity plus total liabilities divided by total assets. For the purpose of this study I will use Tobin's Q as defined by Klapper and Love (2004).

Control Variables

Financial performance is not only affected by CSR, and as such control variables have to be considered in the model. Following McWilliams and Siegel (2001) four control variables are included: SIZE, AGE, R&D and LEVERAGE.

SIZE is important since bigger firms tend to be more prone to adopt CSR policies and practices. (McWilliams and Siegel, 2001 and Waddock and Graves, 1997). Following the approach used in previous studies, size is estimated as the natural log of annual sales.

Wang & Bansal (2012) suggested that more recent firms are not able to realize economies of scale from the CSR investment made, as older firms do. As such, AGE is a factor to be considered. Firm age is estimated by summing the numbers since the firm's creation.

Due to the fact that R&D investment may result in CSR-related process and product innovations, it is relevant to analyze this variable. Since R&D tends to end up in the majority of times in product innovations (Link, 1982), it will be measured by a ratio of R&D expenditures to total sales. (McWilliams and Siegel, 2001).

LEVERAGE is included in my model to avoid the effect of firm-specific capital structure in the relationship between CSR and financial performance. Following the methodology of both McWilliams and Siegel (2001) and Waddock and Graves (1997), LEVERAGE is estimated by dividing firm's total debt by the firm's total assets. It makes sense to control for LEVERAGE, since it is expected that high leverage companies will behave differently concerning CSR investment due to different risk levels involved in CSR investment (Waddock and Graves, 1997).

Sample

The pharmaceutical industry, which is constantly under scrutiny, is key for the European economy. In 2011, Europe was the second largest market for pharmaceutical sales, with a market value of €228.1 billion. The industry employed 660,000 people and had an international trade surplus of €48.3 bn (Source EFPIA). There are not many other sectors that are able to match the contribution this sector offers regarding investment in R&D, trade balance and creation of skilled employment. Economically, the European pharmaceutical industry is seen as a world leader. Since 1985, the European Commission strives to achieve a single market for this industry by guaranteeing direct access to medical products, providing high quality information to the public, and to make sure that the production and selling of the products is done with the highest quality and safety standards. This industry is extremely relevant not only

by its economic power, but also because it provides high-quality employment and a considerable amount of investment in research and development for the public health. Finally, this industry also promotes the development of research and innovation, which will translate in a more competitive economy. As such, it is seen as a crucial industry in Europe. The sample of this study includes the largest pharmaceutical firms in Europe, which are identified via their market capitalization, and also smaller firms.

There are much more pharmaceutical companies operating in Europe, however the focus of my study is in European pharmaceutical companies and several operating in Europe have their headquarters in other continents which leads to a much lower sample. Another constraint in my sample size is that some are private companies, meaning that it is not possible to have access to their financial data, constraining even more my sample size. Adding to this issue, some of them have no published annual reports. Due to these reasons, I was only able to have a sample of 22 pharmaceutical companies, since the three requisites mentioned before excluded a considerable amount of pharmaceutical companies from the study.

The set of firms analyzed include the 22 pharmaceutical companies indicated in Appendix 2. The time period under study is from 2010 to 2013 (four fiscal years). This period is coincident with the Eurozone Crisis, which may have had a negative impact on the financial health of the companies in the sample. However, studies have shown that, except for the period of 2009-2010, CSR performance before and during financial crisis increased significantly (Giannarakis and Theotokas, 2011). This effect is explained by the fact that companies need to differentiate themselves in order to survive in this harsh environment. As such, CSR strategies and initiatives can be seen as a good strategy (Thomé, 2009). Companies start to understand that instead of seeing CSR as a threat due to its high costs – which in a crisis situation can be very difficult to deal with – they should see it as an opportunity to differentiate and gain competitive advantage (Giannarakis and Theotokas, 2011).

The source of the data used for this study is Bloomberg, from where I downloaded the following variables: market value of equity, total assets, total liabilities, return on assets, annual sales, R&D expenditures and year of foundation, and it will cover the firms in the chosen pharmaceutical industry (Appendix 2).[3]

[3] Missing values that Bloomberg could not provide were directly looked-on the companies' annual reports. In order to ensure the reliability of the data, a sample was compared with the annual reports values.

Results

Descriptive Statistics

Table 1 illustrates a descriptive summary of all variables under analysis in the study. CSR_D, my main variable, has a mean value of 0.01, which means that, on average, for every 1000 words published on the annual reports, 10 are CSR keywords. Singh (2014), with a similar study performed in UK firms, found that the industry of crude petroleum has a mean value for CSR disclosure of 0.005 (0.5%). This result was considered very low comparing to the ones obtained for the mining and crude petroleum, which have achieved results of 0.008 (0.8%) and 0.007 (0.7%), respectively. My result was considerably higher than all of the three, specially comparing with the UK pharmaceutical industry. This may happen since I am considering pharmaceutical companies of all Europe and not only a specific zone like in its study. It may also be a cultural difference, with companies being more prone to disclose CSR related matters in their annual reports, than British companies.

The pharmaceutical industry has persistently been one of the most profitable industries in the US. By 2005, Forbes magazine reported pharmaceutical companies in the US presented an average ROA of 10.3% compared with the overall industry average of 4.3. Nevertheless, researchers defend that this value is misrepresented. This is explained by the fact that standard accounting measures overstate true returns to R&D-intensive industries – as the pharmaceutical industry – making it difficult to compare with other industries. R&D spending is treated, by almost all accounting measures, as deductible business expense, instead of considering it a capitalized investment. The intangible assets generated by R&D (i.e. accumulated knowledge, patents, and new research capabilities) increase a company's asset base. (Source: Research and Development in the Pharmaceutical Industry: A CBO Study). From 2010-2014, the industry average in Europe was 8.6%. (Nesic *et al,* 2014). My results present an average ROA of 8%. Comparing with the 2005 result in the US, it is comprehensible that during a crisis period ROA decreases, and it goes in line with the industry average estimated by other researchers.

Tobin's Q is, on average, 2.18. Tobin's Q is a measure that represents the ratio of the market value of a firm's existing shares to the replacement cost of the firm's physical assets. When the ratio is higher than one, it is sensible to increase additional investment in the firm, since the profits that are generated exceed the cost of the firm's assets. It is important to consider that Tobin's Q in the pharmaceutical industry is strongly affected by the intangible assets of the firm. Mahlich (2007), discovered that in Japanese pharmaceutical companies'

while the patent stock had the expected positive impact on a firm's Tobin's Q, scientific journal publications were negatively correlated with a firm's market value. The result obtained was explained by the possible path dependencies that aggravate the diversification of a firm's knowledge base. Bracker and Ramaya (2011) defend that there is a strong, curvilinear relationship between R&D intensity and Tobin's Q. Adding to this, the impact of R&D intensity on Tobin's Q changes significantly based on key characteristics of the firm. Specifically, R&D intensity appears to offer greater benefits to larger firms, firms in industries that are research intensive, and high-growth firms (Bracker & Ramaya, 2011).

Now I consider the control variables. R&D expenses relative to total sales are on average 12%. In the US, R&D intensity in the pharmaceutical industry rose from 12% in 1970 to 19% in the late 1990's. By 2006 all the top leaders share the same grounds in spending in R&D with an average of 15%. (Ayoub & Qadoumi, 2007). Nevertheless, my value presents a very big gap between minimum and maximum. For such an innovative industry, the average value was expected to be much higher, and it was not expected that both Galenica (2010 and 2011) and Alliance Pharma (2010, 2011, 2012 and 2013) presented no investment on R&D. From the late 90's until 2006, R&D spending decreased considerably, and with the Eurozone crisis that started in 2010, it is acceptable that R&D levels reach lower levels than when the economy is prospering. Nevertheless, compared with other industries, the pharmaceutical industry presents very high levels of R&D spending relative to the level of sales. The average age of firms is 64, meaning that most of the companies in this industry are very well established in the market, and possess very deep knowledge of how it works and how to access it. The pharmaceutical industry shows an average for leverage of 0.28, which means that the long-term debt for the industry falls short of its total assets by 28%. Usually, pharmaceutical companies present low leverage ratios. (Ross, *et al*, Business Finance 10e by Pearson). MacKay and Phillips (2005) study found that financial leverage is higher in concentrated industries than in competitive industries.

Pearson's Correlation Analysis

Table 2 – Pearson's Correlation Analysis, in the Appendix, exhibits Pearson's correlation analysis for this study. The dependent variable of interest, CSR_D is significantly and positively associated with SIZE, but not with Tobin's Q and ROA. As such, none of the measures of financial performance are significantly correlated with CSR, in this initial analysis. One can also see that the control variables SIZE, AGE, R&D and LEVERAGE have significant correlations between them. This may induce us to expect to have the presence of

multicolinearity in the model. Colinearity implies that two variables are near perfect linear combinations between them. This may lead to the coefficients become unstable and the standard errors get considerably inflated. As such, I will inspect the variance inflation factors (VIF). As a rule of thumb, a variable whose VIF is greater than 10 may need further investigation. Considering Table 5, in Appendix 4, the values of VIF are quite acceptable – all of them are considerably lower than 10 – as such there is no multicolinearity in the model.

Regression Analysis

Hypothesis 1: CSR activities do not have a significant positive impact on the financial performance of a company in the short-term.

$$CSR_D = \alpha + \beta_1 ROA + \beta_2 LEVERAGE + \beta_3 SIZE + \beta_4 AGE + \beta_5 R\&D$$

Based on the results presented in Table 3, there is no significant positive correlation of CSR with ROA, meaning that CSR activities do not have a significant positive impact on the financial performance of a company in the short-term. As such hypothesis 1 is supported by my results.

Hypothesis 2: CSR activities have a significant positive impact on the financial performance of a company in the long-term.

$$CSR_D = \alpha + \beta_1 Tobin's\ Q + \beta_2 LEVERAGE + \beta_3 SIZE + \beta_4 AGE + \beta_5 R\&D$$

Based on Table 4, it is possible to conclude that there is no significant correlation, at a 5% confidence level, between Tobin's Q and CSR disclosure. As such, it is not possible to prove hypothesis 2, meaning that, with the results I obtained, CSR activities do not have a significant positive impact on the financial performance of a company in the long-term.

Hypothesis 3

In order to measure the impact of CSR disclosure on the pharmaceutical industry, the coefficients have to be taken into consideration. Considering ROA, I obtained a coefficient of -0.010 indicating that the pharmaceutical industry suffers a negative impact from CSR disclosure on the short-term profitability. On the other hand, Tobin's Q obtains a value of 0.011, which indicated a positive impact from CSR disclosure on the long-term profitability.

Since, I only choose to use data from the pharmaceutical industry I will compare my results with a similar study in order to reach a conclusion. Singh (2014) ran a similar test on three different industries (crude petroleum, mining metal and pharmaceutical). Considering short-term profitability, the industries of crude petroleum and mining metal obtained values of -0.218 and -0.201, which was considerably different from the value that I obtained for the pharmaceutical industry. Also, Singh (2014) obtained, for the UK pharmaceutical industry a value of, 0.008 that is also different from the one I obtained, meaning that geographic areas can also affect the impact of CSR disclosure on the financial performance. Considering the long-term financial performance Tobin's Q obtained for the industries of crude petroleum, mining metal and pharmaceutical -0.029, -0.045 and 0.022 respectively also all very different from the ones I obtained.

Based on this comparative analysis, I can affirm that CSR affects different industries at different levels.

Conclusion and limitations

CSR analysis is one of the more sensitive topics on the current days. The ambiguity of it in the empirical studies has given rise to an enormous discussion between researchers. Due to the increase on competition throughout all industries, organizations have becoming more interested in finding new ways of gaining advantage over their competitors in order to achieve better financial performance. Theoretically, a way to do so is by engaging into CSR activities. My study is to evaluate if, in the European pharmaceutical industry, the implementation of CSR activities actually affected the financial performance of firms, considering both the short-term and the long-term.

The empirical results obtained suggest that CSR does neither affect the short-term financial performance of a company, nor the long-term financial performance. The results obtained for the short-term financial performance, are consistent with prior studies analyzed in the literature review that claims no immediate financial and economic benefits of implementing CSR activities. On the opposite, for the long-term financial performance, it was expected, based on prior literature, to have achieved a positive link between CSR and long-term financial performance, measured by Tobin's Q. Based on the results achieved, I can conclude that other factors influence whether or not CSR influences long-term financial performance of a company. Based on a comparison analysis, I was also able to prove my third hypothesis and confirm that different industries are differently affected by CSR.

The results obtained in this study have to be interpreted with care, due to the existence of limitations. My main limitations are concerned with the sources of the data and also with the sample size. First of all, the presence of multicollinearity may be a result of the sample being too small. By having to remove some control variables from the model, in order to fix the multicollinearity problem, it may have ended up to affect negatively the quality of the study. Also, I only used 4 years of observations, meaning that the power of prediction may be corrupted. Selecting the appropriate sample size is crucial when designing a successful study. If the study shows insufficient sample size, the statistical power to detect important and consequential effects is corrupted and it may end up producing reckless answers and unpredictable results. (Guo Y. *et al*, 2013). In other words, the power of predicting future values based on prior years will not be effective and generalizations will not be achievable. If the sample size was bigger, either with more pharmaceutical companies or more years in the study, some correlations may have turned statistically significant, affecting the conclusions taken.

Another limitation to the study is the data sources and the software used to perform content analysis. First of all, although annual reports are seen as a reliable source for CSR activities, it presents a lot of limitations discussed above. Moreover, the analysis I performed was only partial, and the software is not flawless. In other words, I did not read entirely the annual reports and as such, the calculation of the dependent variable is biased. Also, the software used has some flaws. One thing important to understand is that computers are not able to understand or discern the meaning of words or constructs, which affects the analysis, since some words have more than one meaning. (Smit, B., 2002).

One important issue to consider, is that I am considering the level of CSR of a company based on the amount of CSR keywords it shows on its annual report. This can be a very flaw proxy compared to the reality of what truly happens. A company may claim to be engaged in plenty activities that it is actually not, being only "show-off" for the stakeholders.

I challenge future researchers to continue this research including more data and also to find better sources of CSR information in order to increase the reliability of the study. Also, as discussed before, it might be interesting to compare industries across different regions/countries, since culture might also be a component that affects the relationship between CSR and financial performance.

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Appendix 1

CSR Keywords	CSR Keywords	CSR Keywords
Accountability	Exceed	Power
Biodegradable	Fair	Preservation
Bio-fuel	Fundraising	Recycle
Charity	Future	Renewable
Community	Global warming	Responsibility
Conservation	GMO-free (genetically modified organisms)	Reuse
Contamination	Green/Greener	Risk
Corporate Citizenship	HACCP (hard analysis and critical control points)	Safety
Donation	Harmful	Security
Downgrade	Hazard/Hazardous	Sponsor
Drug-free	Health	Stewardship
Earth	Honest	Surpass
Ecosystem	Integrity	Sustainability/Sustainable
Emission	ISO14001	Trans-fat-free
Energy	Nature	Transparency
Enrich	Non-invasive	Trees
Environment	Nontoxic	Trust/trusted
Equality	Organic	Waste
Ethics	Philanthropy	Wellbeing

Source: Wang and Bansal (2012)

Appendix 2

Name	
Astrazeneca	Hikma
Bayer	Novo Nordisk
GlaxoSmithKline	Fresenius
IPSEN	Grifols
Lundbeck	Galenica
NOVARTIS	Almirall
Orion	Recordati
ROCHE	Meda AB
Sanofi	Dechra Pharmaceuticals
UCB	Sinclair IS Pharma
Alliance Pharma	Skyepharma

Table 1 – Descriptive Statistics

Variables	CSR D	ROA	Tobin's Q	Leverage	R&D % Sales	Age	Size
N	88	88	88	88	88	88	88
Mean	.011	7.8%	2.184	28.867	12.4%	63.64	3.52
Median	.011	6.0%	1.665	22.263	14.0%	70.00	3.51
Std. Deviation	.00	.082	1.564	29.601	.086	36.37	1.03
Variance	.00	67.2	2.445	876.20	73.995	1322.67	1.06
Minimum	0.00	-10.87%	.5010	0.0	0.00%	13.00	1.45
Maximum	.02	35.80%	10.98	172.25	40.45%	150.00	4.92

Table 2 – Pearson's correlation analysis

	CSR D	ROA	Tobin's Q	Leverage	R&D % Sales	Age	Size
CSR D	1						
ROA	.184	1					
Tobin's Q	.055	,582**	1				
Leverage	-.125	-,251*	,268*	1			
R&D % Sales	.148	.049	.190	,250*	1		
Age	.200	.109	-.009	-,231*	.016	1	
Size	,489**	,387**	.090	-,298**	,258*	,429**	1

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Table 3 – Hypothesis 1 Regression Results

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95,0% Confidence Interval for B		Collinearity Statistics	
	B	Std. Error	Beta			Lower Bound	Upper Bound	Tolerance	VIF
(Constant)	.005	.001		3.631	.000	.002	.008		
ROA	-1.153E-06	.000	-.003	-.025	.980	.000	.000	.824	1.214
Leverage	1.813E-06	.000	.015	.140	.889	.000	.000	.773	1.294
Size	.002	.000	.493	3.977	.000	.001	.003	.603	1.658
Age	-7.781E-07	.000	-.008	-.075	.941	.000	.000	.794	1.260
R&D % Sales	7.172E-06	.000	.018	.165	.870	.000	.000	.813	1.231

Table 4 – Hypothesis 2 Regression Results

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95,0% Confidence Interval for B		Collinearity Statistics	
	B	Std.	Beta			Lower Bound	Upper Bound	Tolerance	VIF
(Constant)	.005	.001		3.602	.001	.002	.008		
Tobin's Q	8.371E-06	.000	.004	.037	.971	.000	.000	.892	1.121
Leverage	1.732E-06	.000	.015	.130	.897	.000	.000	.734	1.362
Size	.002	.000	.492	4.151	.000	.001	.002	.662	1.511
Age	-7.504E-07	.000	-.008	-.072	.943	.000	.000	.800	1.250
R&D % Sales	7.069E-06	.000	.017	.162	.872	.000	.000	.809	1.237